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United States Department of Agriculture

Animal and Plant Health Inspection Service

Program Aid Number 1420

Imported Fire Ant

A Guide for Nursery Operators

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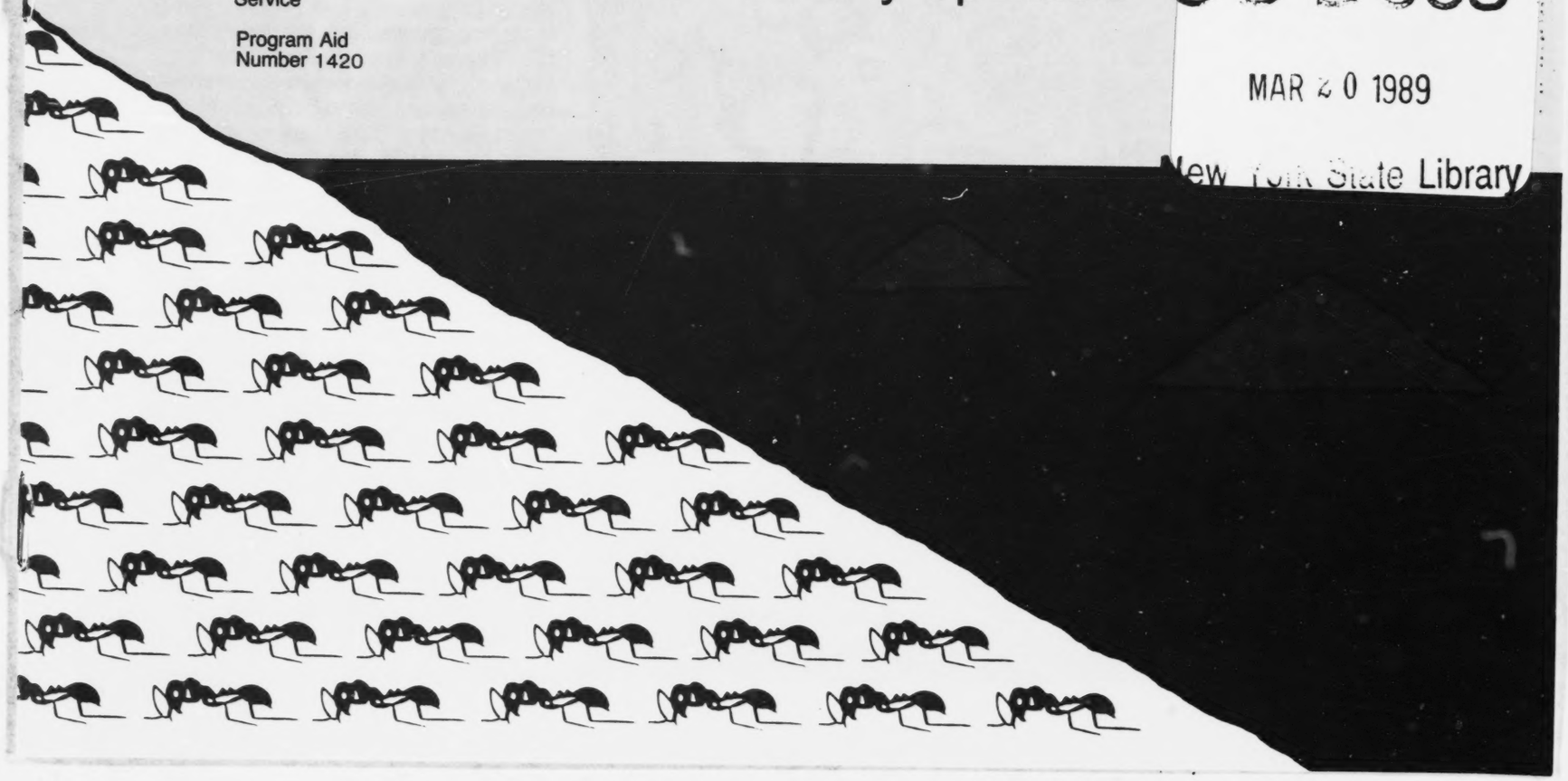

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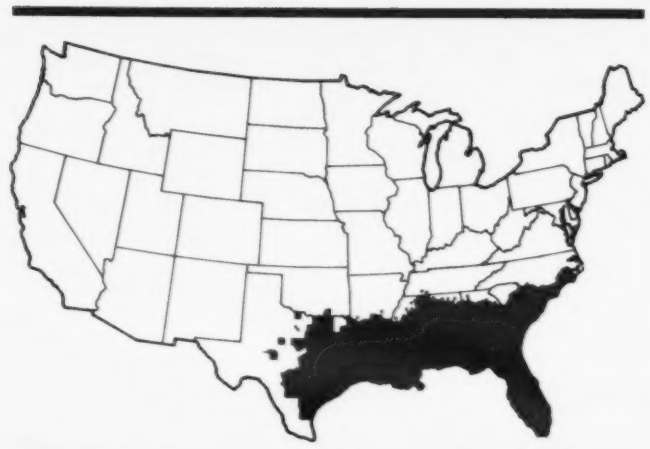
Red shading on the map shows the Federal imported fire ant quarantined area.



Below: A queen ant can lay over 200 eggs per day. Since the queen is nourished by the workers, which forage for her food, poisoned baits carried to the queen result in the destruction of the entire colony.

Imported Fire Ants (IFA)

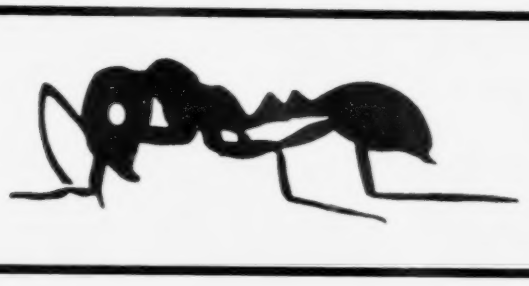
Imported fire ant (IFA) has plagued U.S. farmers, homeowners, park directors, livestock, pets, and wildlife ever since its accidental introduction at Mobile, Alabama, in 1918. This stinging native of South America is also a concern for nursery operators in the 11 infested Southern States. When nurseries ship from these States to uninfested areas of the country, they are required by law to take special precautions to prevent imported fire ant from moving with plants or soil. These precautions are mandated by the Federal imported fire ant quarantine regulating such nursery stock shipments.

This brochure discusses approved methods for treating nursery stock to be shipped, nursery sanitation practices to prevent infestation, and the natural history of imported fire ant. These guidelines are in accordance with the amended quarantine regulations (7 CFR 301.81). Under the authority of the Organic Act (7 U.S.C. 147a), the U.S. Department of Agriculture may cooperate with States or others to carry out measures to suppress this pest.

The Trouble with Imported Fire Ant Is . . .

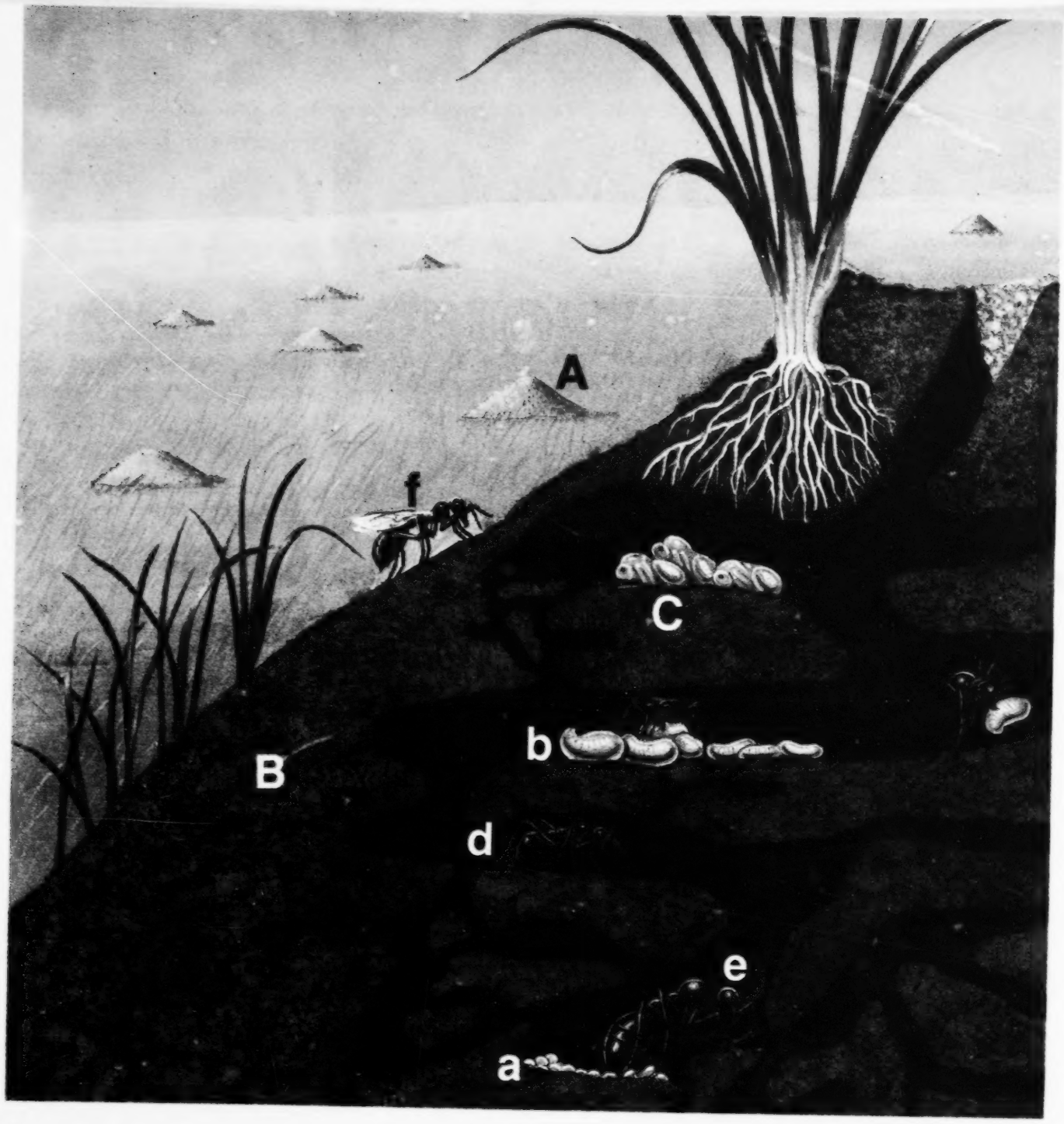
Fire ant venom delivers a stinging sensation unlike that of any other insect—as those who have crossed its path will readily attest. These stings raise itching blisters that often become infected. About 10,000 people a year seek medical attention for IFA bites. In sensitive victims, reactions can include heart attack and, occasionally, death.

In addition to human and animal health risks, fire ants cause other problems for farmers and homeowners. The insects' hard conical nests can mount as high as 2 to 3 feet, presenting significant problems for those who must cultivate or harvest infested fields or for those who find their yards, parks, or other recreational areas invaded. IFA also destroys seedling corn and soybeans, feeds on buds or fruits of many plants, and may girdle young trees.



Nursery field-grown stock infested with fire ants.

A fire ant colony is a complex system of tunnels which the workers use to relocate the eggs, immature fire ants, and the queen when threatened by disturbances from chemicals and physical force.



The Behavior and Biology of the Pest

IFA does a fair job of spreading on its own without any help from humans. Each spring large numbers of winged males and virgin queens leave the colony on a "nuptial flight." Mating occurs in flight and afterwards the males drop to earth and die. The new queens seek out sites for nests. They usually fly less than a mile away but may be blown by wind or carried downstream on debris for 12 miles or more. Hitching a ride by vehicles or on nursery stock, of course, can transport them much farther.

The new queens burrow into the ground, lay 10 to 20 worker eggs, and tend them through the larval and pupal stages. Once hatched, workers take over the maintenance duties of the nest, and the queen settles into life as an egg-laying machine. She can produce more than 200 eggs a day; most

A. Active mounds with fresh soil over the top.

B. Cutaway of nest showing characteristic honey combing and several stages of ants magnified: (a) eggs; (b) larvae; (c) pupae; (d) workers; (e) queen; (f) male.

will be sterile female workers, but sexual males and females are also produced. The workers rear the young, forage for food, and guard the queen.

If the nest is disturbed, the workers will carry the queen away to a safe location and, unless she dies, the colony will reestablish itself. This behavior is important in control of IFA colonies. In containerized nursery stock, colonies can be drenched or immersed in insecticide with no chance of queens being relocated. In field-grown stock, bait treatment is much more effective. The foraging workers will bring the bait—an attractant mixed with an insecticide or a disruptive growth hormone—back to the nest where it will kill the queen and, consequently, the entire colony. Bait relies on foraging workers to carry it back to the nest—behavior that is most likely to occur during morning or evening on days of moderate temperature.

Approved treatments for balled and burlapped nursery stock include immersion (dipping) and drenching (pour-on).

Sod must be treated before being transported outside the fire ant quarantined area.

Approved Quarantine Treatments For Fire Ant

Listed are treatments approved for use as of December 1988 for ornamental (nonfood-bearing) plants.

Commodity	Treatment	Commercial Formulation
I Containerized Nursery Stock	• Immerse stock in chlorpyrifos solution • Apply chlorpyrifos to container to point of saturation (one time only) • Incorporate granular chlorpyrifos into potting soil	• Dursban 2.5 G, Ford's Chemical and Service • Dursban 2E and 4E Dow Chemical
II Balled and Burlapped Stock	• Immerse stock in chlorpyrifos • Drench stock twice daily for 3 consecutive days	• Dursban 2E and 4E Dow
III Field Grown Woody Ornamentals, Preharvest field treatment	• Broadcast LOGIC or AMDRO bait; Apply granular chlorpyrifos 3-5 days later	• LOGIC PBI-Gordon Corp. • Dursban 10G Ford's • AMDRO American Cyanamid
IV Grass Sod	• Apply granular chlorpyrifos, water immediately	• Dursban 10G Ford's

Mention of companies or commercial products does not imply recommendation or endorsement by the U.S. Department of Agriculture over others not mentioned. USDA neither guarantees nor warrants the standard of any product mentioned. Product names are mentioned solely to report factually on available data and to provide specific information.

Choosing a Pesticide

Properly using approved pesticide treatments will combat the spread of imported fire ant and fulfill the legal compliance agreement between nurseries and State/Federal personnel who enforce the IFA quarantine. The list of chemicals summarized in this brochure is current for December 1988. However, pesticide registrations are constantly reviewed by the Environmental Protection Agency, and chemicals for nursery use on imported fire ant may change. Nursery operators should check with their State department of agriculture or the USDA's Animal and Plant Health Inspection Service, Plant Protection and Quarantine, to make sure a specified treatment is still approved for the intended use. Detailed application instructions will also be available from these sources.

Pesticides can injure people, animals, and plants when improperly used. Always follow label directions carefully and heed all precautions.

Applying broadcast bait in nursery field-grown stock to meet Federal certification requirements.

Safeguarding Through Sanitation

Ridding a nursery of IFA begins with proper treatment of regulated articles. Keeping nurseries free of IFA depends upon ongoing sanitation in the nursery and surrounding growing areas.

Loading areas, storage sites, and grassy growing grounds and perimeters are typical hideaway sites of IFA. To reduce pest populations in these places a registered bait treatment (see chart, page 6) should be sprinkled uniformly using a hand spreader.

General sanitation practices are important for all nurseries but they are essential for operations shipping to California or Arizona from fire-ant-infested States. Border inspectors in these States may delay shipments and require retreatment of any nursery stock found with any imported fire ants.

All programs and services are available to anyone without regard to race, color, sex, age, handicap, religion, or national origin.